



Jamie M. Coleman
Regulatory Affairs Director
Vogtle 3 & 4

7825 River Road
Waynesboro, GA 30830
706-848-6926 tel

May 13, 2023

Docket No.: 52-026

ND-22-0705
10 CFR 52.99(c)(1)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of Item 2.2.02.05a.i [Index Number 126]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.2.02.05a.i [Index Number 126] to demonstrate that the Passive Containment Cooling System (PCS) components identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.2.2-1 are designed and constructed in accordance with applicable requirements.

The closure process for this ITAAC is based on the guidance described in NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,

A handwritten signature in black ink that reads "Jamie Coleman". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.2.02.05a.i [Index Number 126]

JMC/AD/sfr

U.S. Nuclear Regulatory Commission

ND-22-0705

Page 2 of 2

cc: Regional Administrator, Region II
 Director, Office of Nuclear Reactor Regulation (NRR)
 Director, Vogtle Project Office NRR
 Senior Resident Inspector – Vogtle 3 & 4

**Southern Nuclear Operating Company
ND-22-0705
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.2.02.05a.i [Index Number 126]**

ITAAC Statement

Design Commitment:

5.a) The seismic Category I components identified in Table 2.2.2-1 can withstand seismic design basis loads without loss of safety function.

6.a) The Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

Inspections, Tests, Analyses:

i) Inspection will be performed to verify that the seismic Category I components and valves identified in Table 2.2.2-1 are located on the Nuclear Island.

ii) Type tests, analyses, or a combination of type tests and analyses of seismic Category I components will be performed.

iii) Inspection will be performed for the existence of a report verifying that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.

i) Type tests or a combination of type tests and analyses will be performed on Class 1E components located in a harsh environment.

ii) Inspection will be performed of the as-built Class 1E components and the associated wiring, cables, and terminations located in a harsh environment.

Acceptance Criteria:

i) The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island.

ii) A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function.

iii) The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

ITAAC Determination Basis

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the Passive Containment Cooling System (PCS) components identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.2.2-1 (the Table) are designed and constructed in accordance with applicable requirements.

i) The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island.

To assure that seismic Category I components can withstand seismic design basis loads without loss of safety function, all of the components in the Table are designed to be located on the seismic Category I Nuclear Island. In accordance with Equipment Qualification (EQ) ITAAC As-built Walkdown Guideline and the EQ ITAAC As-built Installation Documentation Guideline (References 1 and 2), an inspection was conducted of the PCS to confirm the satisfactory installation of the seismically qualified components. The inspection includes verification of component make/model/serial number and verification of component location (Building, Elevation, Room). The EQ As-Built Reconciliation Reports (EQRR) (Reference 3) identified in Attachment A document the results of the inspection and conclude that the seismic Category I components are located on the Nuclear Island.

ii) A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function.

Seismic Category I components in the Table require type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the seismic Category I valves, as well as other passive seismic Category I mechanical components, is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 4). Functionality of the subset of active safety-related valves under seismic loads is determined using the guidance of ASME QME-1-2007 (Reference 5). Structural integrity of the passive containment cooling water storage tank (PCCWST) is demonstrated by analysis. Structural integrity of the water distribution bucket and water distribution weirs is demonstrated by analysis in accordance with ANSI/AISC N690-1994 (Reference 6).

Safety-related (Class 1E) electrical components in the Table are seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 7). These components include safety-related (Class 1E) field sensors and the safety-related active valve accessories such as electric actuators, position switches, pilot solenoid valves and electrical connector assemblies. The specific qualification method (i.e., type testing, analysis, or combination) used for each component in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related components is provided in the Updated Final Safety Analysis Report (UFSAR) Appendix 3D (Reference 8). The EQ Reports (Reference 9) identified in Attachment A contain applicable test reports and associated documentation and conclude that the seismic Category I components can withstand seismic design basis loads without loss of safety function.

iii) The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions.

An inspection (References 1 & 2) was conducted to confirm the satisfactory installation of the seismically qualified components in the Table. The inspection verifies the component make/model/serial number, as-designed component mounting orientation, anchorage and clearances, and electrical and other interfaces. The documentation of installed configuration of seismically qualified components includes photographs and/or sketches/drawings of component/mounting/interfaces.

As part of the seismic qualification program, consideration was given to the definition of the clearances needed around the component mounted in the plant, to permit the component to move during a postulated seismic event without causing impact between adjacent pieces of safety-related components. When required, seismic testing by measuring the maximum dynamic relative displacement of the top and bottom of the components was conducted. EQ Reports (Reference 9) identify the component mounting employed for qualification and establish interface requirements for assuring that subsequent in-plant installation does not degrade the established qualification. Interface requirements are defined based on the test configuration and other design requirements.

Attachment A identifies the EQRR (Reference 3) completed to verify that the as-built seismic Category I components listed in the Table, including anchorage, are seismically bounded by the tested or analyzed conditions, IEEE Standard 344-1987 (Reference 7), and NRC Regulatory Guide (RG) 1.100 (Reference 10).

i) A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

The harsh environment Class 1E components in the Table are qualified by type testing and/or analyses. Class 1E electrical component type testing is performed in accordance with IEEE Standard 323-1974 (Reference 11) and RG 1.89 (Reference 12), to meet the requirements of 10 CFR 50.49. Type testing of safety-related components meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 4. Attachment A identifies the EQ program and specific qualification method for each safety-related mechanical or Class 1E electrical component located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related components is provided in the UFSAR Appendix 3D (Reference 8). EQ Reports (Reference 9) identified in Attachment A contain applicable test reports and associated documentation and conclude that the components can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

An inspection (References 1 & 2) was conducted of the PCS to confirm the satisfactory installation of the Class 1E components in the Table. The inspection verified the component

location, make/model/serial number, as-designed component mounting, wiring, cables, and terminations, and confirms that the environmental conditions for the zone (Attachment A) in which the component is mounted are bounded by the tested or analyzed conditions. It also documents the installed configuration with photographs and/or sketches/drawings of component mounting and connections. The EQRRs (Reference 3) identified in Attachment A document this inspection, and conclude that the as-built harsh environment Class 1E component and the associated wiring, cables, and terminations are bounded by the qualified configuration and IEEE Standard 323-1974 (Reference 11).

Together, these reports (References 3 and 9) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- The seismic Category I components identified in Table 2.2.2-1 are located on the Nuclear Island;
- A report exists and concludes that the seismic Category I components can withstand seismic design basis loads without loss of safety function;
- The report exists and concludes that the as-built components including anchorage are seismically bounded by the tested or analyzed conditions;
- A report exists and concludes that the Class 1E components identified in Table 2.2.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function; and
- A report exists and concludes that the as-built Class 1E components and the associated wiring, cables, and terminations identified in Table 2.2.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 3 and 9 are available for NRC inspection as part of the Unit 4 ITAAC 2.2.02.05a.i Completion Package (Reference 13).

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings and associated corrective actions. This review, which included now consolidated ITAAC Indexes 127, 128, 131 and 132, found the following relevant ITAAC findings associated with this ITAAC:

- 1) Notice of Nonconformance 99900404/2012-201-04 (Closed - ML12313A461)
- 2) Notice of Nonconformance 99901412/2012-201-02 (Closed - ML18152B785)

The corrective actions for these findings have been completed and the findings are closed. The ITAAC completion review is documented in the ITAAC Completion Package for ITAAC 2.2.02.05a.i (Reference 13) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.2.02.05a.i was performed for VEGP Unit 4 and that the prescribed acceptance criteria are met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with the approved plant programs and procedures.

References (available for NRC inspection)

1. ND-RA-001-014, EQ ITAAC As-Built Walkdown Guideline, Version 3.1
2. ND-RA-001-016, EQ ITAAC As-built Installation Documentation Guideline, Version 1.0
3. EQ As-Built Reconciliation Reports (EQRR) as identified in Attachment A for Units 4
4. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, "Rules for Construction of Nuclear Power Plant Components," 1998 Edition, 2000 Addenda
5. ASME QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants," The American Society of Mechanical Engineers, June 2007
6. ANSI/AISC N690-1994, "American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities"
7. IEEE Standard 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations"
8. Vogtle 3&4 Updated Final Safety Analysis Report Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment"
9. Equipment Qualification (EQ) Reports as identified in Attachment A
10. Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants"
11. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"
12. Regulatory Guide 1.89, Rev 1, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants"
13. 2.2.02.05a.i-U4-CP-Rev0, "ITAAC Completion Package"

Attachment A

System: Passive Containment Cooling System (PCS)

Component Name ⁺	Tag No. ⁺	Seismic Cat. I ⁺	Class 1E/ Qual. for Harsh Envir.⁺³	Envir. Zone ¹	Envir Qual Program ²	Type of Qual.	EQ Reports	As-Built EQRR
PCCWST	PCS-MT-01	Yes	-	N/A	N/A	Analysis	APP-1278-CCC-007	2.2.02.05a.i-U4-EQRR-PCD001
Water Distribution Bucket	PCS-MT-03	Yes	-	N/A	N/A	Analysis	APP-MT05-S3C-002	2.2.02.05a.i-U4-EQRR-PCD001
Water Distribution Wiers (<i>sic</i>)	PCS-MT-04	Yes	-	N/A	N/A	Analysis	APP-MT05-S3C-002	2.2.02.05a.i-U4-EQRR-PCD001
PCCWST Isolation Valve	PCS-PL-V001A	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV11-VBR-004 / APP-PV11-VBR-003	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Isolation Valve	PCS-PL-V001B	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV11-VBR-004 / APP-PV11-VBR-003	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Isolation Valve MOV	PCS-PL-V001C	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Isolation Block MOV	PCS-PL-V002A	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Isolation Block MOV	PCS-PL-V002B	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Isolation Block MOV	PCS-PL-V002C	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-PV01-VBR-012 / APP-PV01-VBR-011	2.2.02.05a.i-U4-EQRR-PCD002
PCS Recirculation Return Isolation Valve	PCS-PL-V023	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002

Component Name ⁺	Tag No. ⁺	Seismic Cat. I ⁺	Class 1E/ Qual. for Harsh Envir. ⁺³	Envir. Zone ¹	Envir Qual Program ²	Type of Qual.	EQ Reports	As-Built EQRR
PCCWST Supply to Fire Protection System Isolation Valve	PCS-PL-V005	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCS Makeup to SFS Isolation Valve	PCS-PL-V009	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
Water Makeup Isolation Valve	PCS-PL-V044	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
Water Bucket Makeup Line Drain Valve	PCS-PL-V015	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
Water Bucket Makeup Line Isolation Valve	PCS-PL-V020	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Long-Term Makeup Line Check Valve	PCS-PL-V039	Yes	-/No	N/A	N/A	Analysis	APP-PV03-VBR-014 / APP-PV03-VBR-013	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Long-Term Makeup Drain Isolation	PCS-PL-V042	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCS Discharge to SFS Pool Isolation Valve	PCS-PL-V045	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
Recirc Header Discharge to PCCWST Isolation Valve	PCS-PL-V046	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV03-VBR-010 / APP-PV03-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Drain Isolation Valve	PCS-PL-V049	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002

Component Name ⁺	Tag No. ⁺	Seismic Cat. I ⁺	Class 1E/ Qual. for Harsh Envir. ⁺³	Envir. Zone ¹	Envir Qual Program ²	Type of Qual.	EQ Reports	As-Built EQRR
Recirc Header Discharge to SFS Pool Isolation Valve	PCS-PL-V050	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCCWST Discharge to SFS Pool Isolation Valve	PCS-PL-V051	Yes	-/No	N/A	N/A	Type Testing & Analysis	APP-PV02-VBR-010 / APP-PV02-VBR-009	2.2.02.05a.i-U4-EQRR-PCD002
PCS Water Delivery Flow Sensor	PCS-001	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
PCS Water Delivery Flow Sensor	PCS-002	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
PCS Water Delivery Flow Sensor	PCS-003	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
PCS Water Delivery Flow Sensor	PCS-004	Yes	Yes/No	N/A	N/A	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
Containment Pressure Sensor	PCS-005	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
Containment Pressure Sensor	PCS-006	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
Containment Pressure Sensor	PCS-007	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
Containment Pressure Sensor	PCS-008	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
PCCWST Water Level Sensor	PCS-010	Yes	Yes/No	N/A	N/A	Type Testing	APP-JE52-VBR-002 / APP-JE52-VBR-001	2.2.02.05a.i-U4-EQRR-PCD003

Component Name ⁺	Tag No. ⁺	Seismic Cat. I ⁺	Class 1E/ Qual. for Harsh Envir. ⁺ 3	Envir. Zone ¹	Envir Qual Program ²	Type of Qual.	EQ Reports	As-Built EQRR
PCCWST Water Level Sensor	PCS-011	Yes	Yes/No	N/A	N/A	Type Testing	APP-JE52-VBR-002 / APP-JE52-VBR-001	2.2.02.05a.i-U4-EQRR-PCD003
High-range Containment Pressure Sensor	PCS-012	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
High-range Containment Pressure Sensor	PCS-013	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003
High-range Containment Pressure Sensor	PCS-014	Yes	Yes/Yes	7	E *	Type Testing & Analysis	APP-JE52-VBR-006 / APP-JE52-VBR-005	2.2.02.05a.i-U4-EQRR-PCD003

Notes:

+ Excerpt from COL Appendix C Table 2.2.2-1

1. See Table 3D.5-1 of UFSAR
2. E = Electrical Equipment Program (limit switch and the motor operator, squib operator, solenoid operator)
* = Harsh Environment
3. Dash (-) indicates not applicable